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EPIDEMIOLOGICAL ASPECTS OF THE ZOONOTIC INFECTIONS IN VARNA REGION IN 1990-1997

R. Konstantinov, Ts. Paunov, M. Deneva*

*Department of Infectious Diseases and Epidemiology, Medical University of Varna, and *Hygienic and Epidemiologic Inspection, Varna*

Some epidemiological features of the zoonotic infections in Varna region in 1990-1997 were investigated. The analysis was based on the data of the officially registered incidence rate. A remarkable increase of the number of cases with Lyme borreliosis, boutonneous fever and other diseases in comparison with that in some previous years was estblished. This elevation was due to certain favourable epidemiological factors. Case distributions according to epidemiological indices were shown. This initial investigation serves as a basis for more profound research in the field of zoonotic-infection epidemiology in Varna region.

Key-words: Lyme disease, boutonneous fever, Q-fever, leptospirosis, incidence rate, Varna region

Zoonotic infections are an important medical and social problem in all countries of the world. Their epidmiological significance is determined by the natural center endemity, extreme variability of agents, and their ecologic plasticity. Numerous authors and work groups of WHO experts pay attention to the need of an universal study of the zoonotic infections to define the cardinal epidemiological and clinical manifestations and to elaborate a system for epidemic control (13-17). Problems of a primary importance in Bulgaria consist in the determination of the following (4): the incidence rate in the various regions, the seasonal dynamics, the epidemic zone dimensions, and the infection rates of the carriers of some zoonotic infections as well.

In this communication we present the data from the analysis of some microepidemiological parameters of the incidence rate of some epidemiologically important zoonotic infections in Varna region in 1990-1997 based on the official registrations in the listings of the Hygienic and Epidemiologic Inspection of Varna (HEI-Varna).

Address for correspondence:
R. Konstantinov, Dept. of Infectious Diseases and Epidemiology, Medical University, 55 Marin Drinov St, BG-9002 Varna, BULGARIA
E-mail: infect@asclep.muvar.acad.bg

MATERIALS AND METHODS

Official registration data about the acute infectious diseases were gath-

ered from the listings of HEI-Varna during the period from 1990 till 1997. Some aspects of the routine epidemiological work performed in epidemic centres with Lyme borreliosis, boutonneous fever, Q-fever and leptospirosis were considered, too. The information was processed by means of statistical methods and then epidemiologically analysed.

RESULTS AND DISCUSSION

The Lyme disease incidence rate in Varna region during this period has the average value of 61,12 cases per 100 000 inhabitants and indicates a marked trend to increase in the first years after introduction of the official registration forms in 1992 (Fig. 1). The course of the incidence rate in Bulgaria is similar during the same period if even at a significantly lower levels (3-6). Differences are due to some unsolved problems connected with the need of adopting a standard definition of the disease in the whole country and supplying appropriate test systems for serological confirmation of the clinical and epidemiological diagnosis (10).

The distribution of Lyme disease incidence rates according to age groups in 1991-1997 shows that 77,95 % of the patients suffer since more than 20 years. The highest values of the incidence rate are observed in the age group between 20 and 44 years - 172,55 cases per 100 000 inhabitants followed by these of the group over 60 years - 103,78 cases per 100 000 inhabitants corresponding with the mechanism of transmission by ixodic parasites (7,8) where people at active age are the target.

The age dynamics of the incidence rate increases for all groups (Fig. 2) with some fluctuations due to the influence of seasonal and other factors which should additionally be studied. The urban population (78,2 %) and females (56,5 %) dominate according to nata of the national statistics (3-6).

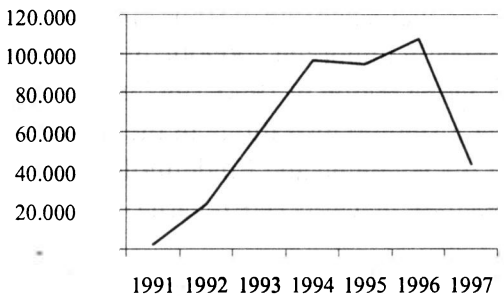

Fig. 1. Lyme disease incidence rate in Varna region in 1991-1997 (per 100 000 inhabitants)

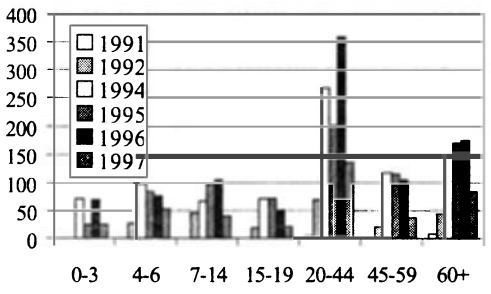

Fig. 2. Age distribution of the lyme disease incidence rate in Varna region in 1991-1997

The seasonal indices show a particular activity of the epidemic process in the months IX, X, I, and III because of the seasonal activity of the carriers and, probably, to some other factors as well (3-6). Most patients were living in the maritime forest and country house zone. It is most likely that biocenotic chains maintaining the activity of the Lyme disease epizotic and epidemic process are formed there.

The incidence rate of boutonneous fevere in 1994-1997 marks an extremely high speed of acceleration (Fig. 3) with a total of new 693 cases during the period (38,36 cases per 100 000 inhabitants). Similar data are registered in other regions endemic for this disease (2-6,11,12). Some authors (1,11) explain the increased activity of the epidemic process by the combination of natural and social factors such as persisting natural centres of infection and an increased number of dogs, being the main receivers of dog's tick, the specific carrier of *R. conori*. Most cases are registered in the age over 20 years - 70 %. The incidence rate of the disease is highest at the age of 20-44 years (118,90 cases per inhabitants), followed by that between 0 and 3 years (68,29 cases per 100 000 inhabitants) and between 7 and 14 years (48,62 cases per 100 000 inhabitants). This patients' age distribution is due to the more frequent contacts with dogs and attacks by the tick carrier groups (5,6).

Fig. 4 shows the age-related dynamics of the incidence rate of the boutonneous fever. There is an outlined increase for all the age groups. The seasonal distribution is typical of the disease with a peak in August coinciding with the activity peak of the carriers (6,9,12). Townpeople and females dominate among the patients similarly to data reported by other authors (1,5,6,12).

A correlation between the number of dogs and that of the patients with boutonneous fever has been established (1,9). This shows the way to the solution of the problem - by means of modern methods for controlling the dog population and systematic deacarization.

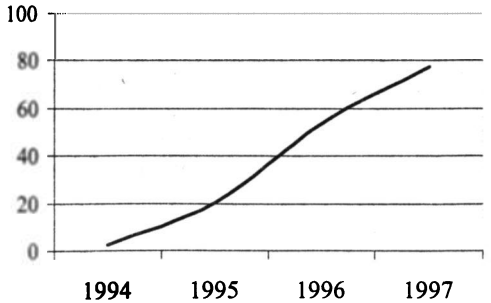

Fig. 3. Boutonneous fever incidence rate in Varna region in 1991-1997 (per 100 000 inhabitants)

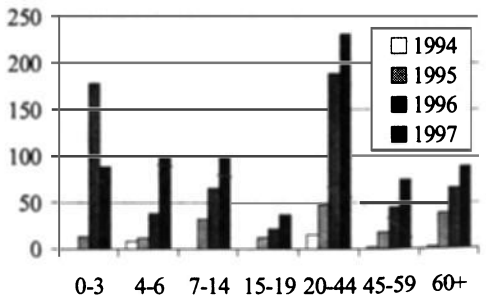

Fig. 4. Age distribution of the boutonneous fever incidence rate in Varna region in 1991-1997

The incidence rate of Q-fever in Varna region in 1994-1997 (Fig. 5) is low (2,05 cases per 100 000 inhabitants) or a total of 37 cases. There is, however, a trend of its increase during the examined period by 5 times. These data are in accordance with the Q-fever incidence rate of the whole country (3-6). One of the highest values for Varna region is outlined. The age groups of 20-44 years (8,67 cases per 100 000 inhabitants) and of 0-3 years (4,76 cases per 100 000) are mainly affected. The explanation is in the transmitting mechanism - aerogenic and alimentary, especially at the younger age, e. g. through infected milk (6,9). The females and the townpeople predominate. Data from the first stage of an epidemiologic Q-fever study in 6 regions show that 59,3 % of the patients with pneumonia and acute respiratory infections and 60 % of the healthy persons are with positive serological tests for Q-fever (6). The high percentage of infection by ixodic ticks (86,21 %) and by agricultural animals (78,6 %) determines the importance of the problem and the need of a collaborative investigations by medical and veterinary authorities.

The incidence rate of leptospirosis is low (0,61 %) for all the years of the examined period. Men in active age are exclusively affected and a serious research is needed for clarifying the real epidemic status (3-6,10).

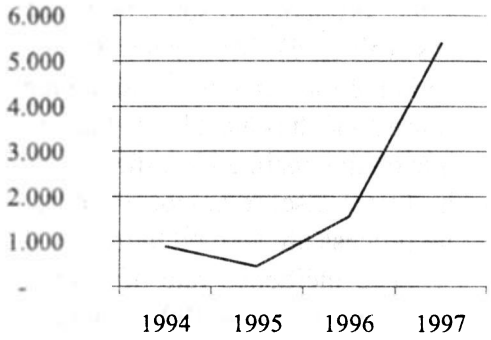

Fig. 5. Q-fever incidence rate in Varna region in 1991-1997 (per 100 000 inhabitants)

The brief epidemiological review of some zoonotic infections in Varna region has shown an intensive epidemic process on the activated epizootic chain background. The marked dynamics is explained through natural and social factors favourable for the epidemic process which should be influenced by purposeful clinico-epidemiological diagnostics and already introduced objectivization by test-systems. A comprehensive research of the epidemic situation with the zoonotic infections in Varna region is required to define the crucial epidemiological factors and to apply an effective epidemic control system.

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Епидемиологични аспекти на зоонозните инфекции във Варненски регион за периода 1990-1997 г.

Р. Константинов, Ц. Паунов, М. Денева*

*Катедра по инфекциозни болести и епидемиология,Медицински университет-Варна и *Хигиенно-епидемиологична инспекция-Варна*

Резюме: Разглеждат се някои епидемиологични характеристики на зоонозните инфекции във Варненски регион за периода 1990-1997 г. Анализът се основава на данните от официалната регистрация на инфекциозната заболеваемост. Установява се значимо увеличаване на честотата на случаите при лаймската болест, марсилската треска, Q-треската, лептоспирозата и др. заболявания в сравнение с предишните години, дължащо се на съчетанието на благоприятни в епидемиологично отношение фактори. Представено е разпределението на случаите по епидемиологични показатели. Това първоначално проучване е основа за по-задълбочени изследвания върху епидемиологията на зоонозните инфекции във Варненски регион.